



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/799,506 02/12/97 YAMAZAKI

S 0756-1630

022204
NIXON PEABODY, LLP
8180 GREENSBORO DRIVE
SUITE 800
MCLEAN VA 22102

MMC2/1107

EXAMINER

WILL CZEWSKI, M

ART UNIT

PAPER NUMBER

2822
DATE MAILED:

11/07/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/799,506

Applicant(s)

Yamazaki et al.

Examiner

Mary Wilczewski

Art Unit

2822



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 8, 2001
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 80-82, 84-88, 92-94, 98-100, 105, 108-110, 114, 115, 118-120, is/are pending in the application.
- 4a) Of the above, claim(s) 84 and 85
- 5) ☐ Claim(s) _____ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 80-82, 86-88, 92-94, 98-100, 105, 108-110, 114, 115, 118-120, and is/are allowed.
- 7) ☐ Claim(s) _____ is/are rejected.
- 8) ☐ Claims _____ is/are objected to.
- _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 08/330,797
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 41,43
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Art Unit: 2822

DETAILED ACTION

This Office action is in response to the election and amendment filed on August 8, 2001.

Election/Restriction

Claims 83-85, 89-90, 95-97, 101-103, 106, 107, 111-113, 116, 117, and 121-131 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species of the claimed invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 44.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 80, 81, 86, 87, 104, 105, 108, and 109 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Zhang et al., U. S. Patent 5,352,291, of record.

Zhang et al. disclose an apparatus which anticipates the instant claims, see figure 2 and columns 6-7 (Example 2).

Art Unit: 2822

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 80- 82, 86-88, 104, 105, 108, 109, and 132-135 are rejected under 35

U.S.C. 102(e) as being clearly anticipated by Zhang et al., U. S. Patent 5,352,291, of record, further in view of Satoshi, JP 4-152624, cited by Applicants in the IDS filed on January 26, 2001.

Zhang et al. disclose a multi-chambered apparatus comprising a laser irradiation chamber, a film deposition chamber, and a chamber capable of taking the substrate out of the apparatus, see figure 2 and columns 6-7. Although Zhang et al. disclose that substrate is irradiated in the laser irradiation chamber with a laser in vacuum or in an inactive atmosphere, Zhang et al. fail to teach to crystallize the amorphous silicon film in an oxidizing atmosphere. However, it is well known in the art to crystallize amorphous silicon films in an oxidizing atmosphere in order to enable a polycrystalline silicon film to be grown having large crystal grains, see the abstract of Satoshi. Therefore, in light of the teaching of Satoshi it would have been obvious to one skilled in the art to crystallize the amorphous silicon film in the known apparatus of Zhang et al. in an oxidizing atmosphere.

Art Unit: 2822

Claim 110 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., U. S. Patent 5,352,291, as applied to claims 86 and 89, respectively, above, and further in view of Begin et al., U. S. Patent 5,310,410.

Claims 92-94, 98-100, 114, 115, and 118-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., U. S. Patent 5,352,291, further in view of Begin et al., U. S. Patent 5,310,410.

Zhang et al. disclose a multi-chambered processing apparatus, as illustrated in Figure 2, in which a light irradiation chamber, heat treatment chamber and a deposition chamber are arranged in series. The apparatus also includes a chamber for discharging substrates and a transportation system for transferring substrates from one chamber to another, see columns 6-7. Zhang et al. lack anticipation only of arranging the processing chambers in a cluster and having one chamber for putting the substrate into the multi-chambered apparatus and for taking the substrate out of the apparatus and of transporting the substrate from one chamber to another using a robot arm.

Begin et al. discloses a multi-chambered apparatus in which loading chamber 26 is used to load substrates into the apparatus and transfer processed substrates out of the apparatus and in which a robotic arm is used to transport the substrate from one processing chamber to another, see figures 1 and 2 and column 5, lines 9-16. It would have been obvious to the skilled artisan in light of the teachings of Begin et al. that the various processing chambers of the multi-chambered apparatus of Zhang et al. could be arranged in a cluster using one chamber for loading and unloading substrates into and out of the apparatus and having a robotic arm located in a central

Art Unit: 2822

chamber for transporting the substrate from one processing chamber to another, since this is a well known arrangement for multi-chambered apparatuses and eliminates the need for two separate chambers for loading and unloading the substrates.

Claims 82, 85, and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., U. S. Patent 5,352,291.

Zhang et al. is applied as supra. Although Zhang et al. do not expressly teach use of the disclosed apparatus to form a silicon oxide film, Zhang et al. do disclose that the apparatus can be used to deposit an insulating film, see column 7, lines 10-18. It would have been obvious to the skilled artisan that the apparatus of Zhang et al. could have been used to form a silicon oxide film because a silicon oxide film is an insulating film.

Response to Arguments

Applicant's arguments filed August 8, 2001, have been fully considered but they are not persuasive.

Independent claims 80, 86, 92, and 98 have been amended to recite that the first chamber is intended for the irradiation of a laser light to a semiconductor film formed over a substrate *under an oxidizing atmosphere*. It has been well established that the manner in which an apparatus is operated does not differentiate the claimed apparatus from that of the prior art.

Art Unit: 2822

Apparatus claims must be *structurally* distinguishable from the apparatus of the prior art. In the present claims, the recitation of the atmosphere within the laser irradiation chamber does not distinguish the claimed apparatus from that of Zhang et al. in terms of structure but rather in terms of function. Claims containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. Zhang et al. clearly teach all the structural limitations of the claims. However, a new rejection has been made based on Zhang et al. in view of Satoshi in order to show that the presence of an oxidizing atmosphere during crystallization of a silicon film would have been obvious to one skilled in the art, since it is known that crystallization of silicon films in an oxidizing atmosphere enables the growth of polysilicon films having large grain sizes.

In addition, it has been well established that the intended use of an apparatus is not germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530 (CCPA 1971). The purpose to which an apparatus is to be put and any expression relating the apparatus to the contents thereof during the intended operation of the apparatus are not significant in determining the patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666 (PTO Board of Appeals 1969). Moreover, inclusion of the material worked on by an apparatus being claimed does not impart patentability to the claim, *In re Otto et al.*, 136 USPQ 458 (CCPA 1963). A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus

Art Unit: 2822

satisfying the structural limitations of that claimed, *Ex parte Masham*, 2 USPQ2d 1647 (PTO Board of Appeals 1987).

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/330,797, filed on October 28, 1994.

Drawings

The drawings filed on October 28, 1994, have been objected to by the Draftsperson; note the form PTO-948 attached to Paper No. 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Wilczewski whose telephone number is (703) 308-2771.



M. Wilczewski
Primary Examiner
Tech Center 2800

MW
November 5, 2001